

CURRICULUM VITAE

Bradley James Thomson

NASA Jet Propulsion Laboratory
Mail Stop 183-501
4800 Oak Grove Dr.
Pasadena, CA 91109

Phone: 818.393.6307
Fax: 818.393.4445
Email: bradley.j.thomson@jpl.nasa.gov

EDUCATION

- Ph.D.* Geological Sciences, Brown University, 2005
Dissertation title: *Recognizing impact glass on Mars using surface texture, mechanical properties, and mid-infrared spectroscopic properties*
Advisor: Peter H. Schultz
- M.Sc.* Geological Sciences, Brown University, 2001
Thesis title: *Utopia Basin, Mars: Origin and evolution of basin internal structure*
Advisor: James W. Head III
- B.S.* Harvey Mudd College, 1999, Geology major at Pomona College
Thesis title: *Thickness of basalts in Mare Imbrium*
Advisor: Eric B. Grosfils

PROFESSIONAL EXPERIENCE

Postdoctoral Fellow, Jet Propulsion Lab, Summer 2006-present

With advisor Nathan Bridges, identifying and mapping wind-abraded rocks at MER rover landing sites in order to study past and present aeolian regimes on Mars. Currently serving as mass wasting STL (Science Theme Lead) for the HiRISE camera on Mars Reconnaissance Orbiter; also working on Mars analog research with Simon Hook of JPL.

Participant, Planetary Science Summer School, Jet Propulsion Lab, Summer 2006

Helped design a New Frontiers-class mission to study Saturn's atmospheric composition.

Postdoctoral Fellow, Lunar and Planetary Institute, Fall 2005-Spring 2006

Analyzed the subsurface structure of craters on Mars that have been exposed in cross-section by erosion.

Sheridan Center Graduate Fellow for the Sciences, Brown University, 2002-2004

Organized series of teaching seminars and workshops intended to help graduate students improve their teaching skills.

NASA SpaceGrant Graduate Fellow, Brown University, Fall 2001

Designed and led education outreach activities at local grade schools and museums.

Student Researcher, Brown University NASA ARC Program, Spring-Summer 2001

Worked with local environmental consulting firm to use remote sensing to assess water quality parameters.

Graduate Teaching Assistant, Brown University, 1999-2002

Geology 81: Planetary Geology, Spring 2002
Geology 5: Earth, Moon, and Planets, Fall 2000
Geology 6: Earthquakes, Volcanic Eruptions, and other Geologic Hazards, Spring 2000
Geology 5: Earth, Moon, and Planets, Fall 1999

Undergraduate Teaching Assistant, Pomona College, 1997

Introduction to Geohazards, Fall 1997

Intern, Lunar and Planetary Institute, 1997

Paul D. Spudis & D. Ben J. Bussey, advisors

EXTERNAL FUNDING

Mars Fundamental Research Program Grant, “Extracting Science From Rock Abrasion Tool (RAT) Grinds,” NNN07ZDA001N, FY08-FY011. Institutional PI: Nathan Bridges, Science PI/Co-I: Bradley Thomson.

HONORS AND AWARDS

Sheridan Center Teaching Certificate III: Professional Development Seminar, 2004

GSA Stephen E. Dwornik Student Award for best oral presentation at the 34th annual Lunar and Planetary Science Conference, 2003

Field research grant, Bevan and Mary-Hill French Fund for Meteorite Impact Studies, 2003

Sigma Xi member, 2003

Sheridan Center Teaching Certificate II: Classroom Tools, 2003

NASA SpaceGrant Fellowship, 2001

Sheridan Center Teaching Certificate, Spring 2000

Serbian Benevolent Society Scholarship, San Francisco, CA, 1994-1998

Dean List, Harvey Mudd College, Fall 1996, Fall 1997

Rotary Scholarship, Alameda, CA, 1994-1996

SERVICE TO THE COMMUNITY

Member, Science Advisory & Technology Council (STAC)—Jet Propulsion Lab, 2007 to present

Member, Program Organizing Committee – 37th Lunar and Planetary Science Conference, 2006

Panel Member – NASA Geology and Geophysics Program, 2007

Panel Member – NASA Mars Data Analysis Program, 2007

Panel Member – Lunar Reconnaissance Orbiter Participating Scientist Program, 2007

External Proposal Reviewer – NASA Geology and Geophysics Program, 2006

External Proposal Reviewer – NASA Mars Data Analysis Program, 2006

Student presentation judge – 37th Lunar and Planetary Science Conference, 2006, 2007

Science fair judge – Clear Lake Middle School, Clear Lake, TX, Fall 2005

PUBLICATIONS

Peer-Reviewed Articles

- Thomson, B. J.**, N. T. Bridges, and R. Greeley, Rock abrasion features in the Columbia Hills, Mars, *Journal of Geophysical Research*, *in press*, 2008.
- Thomson, B. J.**, E. B. Grosfils, D. B. J. Bussey, and P. Spudis, Thickness of basalts in Mare Imbrium, *Geophysical Research Letters*, *submitted*, Dec 2007.
- Thomson, B. J.**, Use of robotic arm pushing sequences as a rock density probe, *The Mars Journal*, *submitted*, Mar 2008.
- Thomson, B. J.** and P. H. Schultz, The geology of the Viking Lander 2 site revisited, *Icarus*, *191*, 505-523, 2007.
- Thomson, B. J.** and J. W. Head, Utopia Basin, Mars: Characterization of topography and morphology and assessment of the origin and evolution of basin internal structure, *Journal of Geophysical Research*, *106*, 23,209-23,230, 2001.
- Grant, J. A., R. P. Irwin, III, J. P. Grotzinger, R. E. Milliken, L. L. Tornabene, A. S. McEwen, C. M. Weitz, S. W. Squyres, T. D. Glotch, and **B. J. Thomson**, HiRISE imaging of impact megabreccia and sub-meter aqueous strata in Holden Crater, Mars, *Geology*, *36*(3), 195-198, 2008.
- McEwen, A. S., C. J. Hansen, W. A. Delamere, E. M. Eliason, K. E. Herkenhoff, L. Keszthelyi, V. C. Gulick, R. L. Kirk, M. T. Mellon, J. A. Grant, N. Thomas, C. M. Weitz, S. W. Squyres, N. T. Bridges, S. L. Murchie, F. Seelos, K. Seelos, C. H. Okubo, M. P. Milazzo, L. L. Tornabene, W. L. Jaeger, S. Byrne, P. S. Russell, J. L. Griffes, S. Martínez-Alonso, A. Davatzes, F. C. Chuang, **B. J. Thomson**, K. E. Fishbaugh, C. M. Dundas, K. J. Kolb, M. E. Banks, and J. J. Wray, A closer look at water-related geologic activity on Mars, *Science*, *317*, 1706-1709, 2007.
- Chuang, F. C., R. A. Beyer, A. S. McEwen, and **B. J. Thomson**, HiRISE observation of slope streaks on Mars, *Geophysical Research Letters*, *34*, L20204, doi:10.1029/2007GL031111, 2007.
- Bridges, N. T., P. E. Geissler, A. S. McEwen, **B. J. Thomson**, F. C. Chuang, K. E. Herkenhoff, L. P. Keszthelyi, S. E. Martínez-Alonso, Windy Mars: A dynamic planet as seen by the HiRISE camera, *Geophysical Research Letters*, *34*, L23205, doi:10.1029/2007GL031445, 2007.
- Head, J. W., H. Hiesinger, M. A. Ivanov, M. A. Kreslavsky, S. Pratt, and **B. J. Thomson**, Possible ancient oceans on Mars: Evidence from Mars Orbiter Laser Altimeter data, *Science*, *286*, 2134-2137, 1999.

Selected Conference Proceedings

- Thomson, B. J.**, N. T. Bridges, and M. C. McCanta, Meteorites on Mars: Implications for sample-return strategy, *Workshop on ground truth from Mars: Science payoff from a Sample Return Mission*, abstract #1305, 2008.
- Thomson, B. J.**, N. T. Bridges, R. Milliken, J. F. Bell III, W. C. Calvin and C. M. Weitz, New Constraints on the origin and evolution of the layered deposits in Gale Crater, Mars, *Lunar and Planetary Science Conference*, *39*, abstract #1456, 2008.

- Beyer, R. A., F. C. Chuang, **B. J. Thomson**, M. P. Milazzo, J. Wray, Martian slope streak brightening mechanisms, *Lunar and Planetary Science Conference*, 39, abstract #2538, 2008.
- Bridges, N. T. E. Gorbaty, R. A., Beyer, S. Byrne, **B. J. Thomson**, J. Wray, HiRISE Team, Low thermal inertia and high elevation bedforms as seen by the HiRISE camera, *Lunar and Planetary Science Conference*, 39, abstract #2108, 2008.
- Marion, G. M., J. K. Crowley, **B. J. Thomson**, S. J. Hook, N. T. Bridges, A. J. Brown, J. S. Kargel, C. R. de Souza Filho, Acidic Australian playa lakes as analogues for Mars, *Lunar and Planetary Science Conference*, 39, abstract #1772, 2008.
- Crowley, J. K., S. J. Hook, C. R. de Souza Filho, G. de Pereira Silva, N. T. Bridges, **B. J. Thomson**, J. S. Kargel, A. J. Brown, B. Ribeiro da Luz, A. Baldwin, G. M. Marion, Spectral diversity of terrestrial banded iron formations and associated rocks: Implications for Mars remote sensing, *Lunar and Planetary Science Conference*, 39, abstract #1263, 2008.
- Thomson, B. J.** and N. T. Bridges, Rock abrasion features in the Columbia Hills, *Lunar and Planetary Science Conference*, 38, abstract #1780, 2007.
- Bridges, N. T., L. P. Keszthelyi, A. S. McEwen, N. Thomas, **B. J. Thomson**, and The HiRISE Team, Aeolian studies from HiRISE, *Lunar and Planetary Science Conference*, 38, abstract #2098, 2007.
- Crowley, J. K., J. S. Kargel, G. M. Marion, S. J. Hook, **B. J. Thomson**, C. R. de Souza Filho, N. T. Bridges, and A. J. Brown, Detecting reduced zones in oxidized Fe-rich sedimentary rocks: Spectral clues to organic matter concentrations? *Lunar and Planetary Science Conference*, 38, 2007.
- Watson, A., S. Strong, O. Dawson, J. Likar, T. Balint, A. Aubrey, N. Bramall, A. Chereck, G. Dominguez, E. Hultgren, J. Levy, T. Liu, M. Elwood Madden, C. Plesko, D. Sigel, C. Soderlund, Y. Takahashi, S. Thompson, **B. J. Thomson**, and D. Wiese, Dual probes to Saturn: A New Frontiers class mission design concept, *Lunar and Planetary Science Conference*, 38, abstract # 1199, 2007.
- Thomson, B. J.** and N. T. Bridges, Ventifact orientations at the MER Spirit landing site: Correlations with local topography, *AGU Fall Meeting*, abstract #P41B-1272, 2006.
- Likar, J. J., Strong, S., Dawson, O., Watson, A., Balint, T., Aubrey, A., Bramall, N., Chereck, A., Dominguez, G., Hultgren, E., Levy, J., Liu, T., Elwood Madden, M., Plesko, C., Sigel, D., Soderlund, K., Takahashi, Y., Thompson, S., **Thomson, B.**, Wiese, D., Mission design concept for in situ characterization of Saturnian atmospheric composition, *AGU Fall Meeting*, abstract #P41C-1297, 2006.
- Thomson, B. J.**, Cut craters on Mars: A study of impact craters exposed in cross-section, *Lunar and Planetary Science Conference*, 37, abstract #1906, 2006.
- Thomson, B. J.**, and P. H. Schultz, The geology of the Viking 2 Landing Site revisited, *Lunar and Planetary Science Conference*, 36, abstract #1800, 2005.
- Thomson, B. J.**, and P. H. Schultz, Erosion rates at the Viking 2 Landing Site, *Lunar and Planetary Science Conference*, 35, abstract #1885, 2004.
- Thomson, B. J.**, and P. H. Schultz, Carbonates on Mars: Probable Occurrences, Spectral Signatures, and Exploration Strategies, *6th International Mars Conference*, abstract #3229, 2003.
- Thomson, B. J.**, and P. H. Schultz, Analogs of Martian surface components: Distinguishing impact glass from volcanic glass, *Lunar and Planetary Science Conference*, 34, abstract #1416, 2003.

- Thomson, B. J.**, and P. H. Schultz, Mid-infrared spectra of Argentine impact melt: Implications for Mars, *Lunar and Planetary Science Conference*, 33, abstract #1595, 2002.
- Rogers, J. N., **B. Thomson**, M. Harlow, J. Mustard, and K. Staffier, Detection of water quality and aquatic macrophyte vegetation in the South Coastal Watershed, Massachusetts using Landsat ETM+ and Ikonos Imagery, *GSA Annual Meeting*, A-319, 2001.
- Thomson, B. J.**, and J. W. Head, An investigation of proposed glacial landforms in the Hellas Basin, Mars, *Lunar and Planetary Science Conference*, 32, abstract #1374, 2001.
- Thomson, B. J.**, and Head, J. W., Estimating the silica content of Martian lava flows using MOLA, *Lunar and Planetary Science Conference*, 31, abstract #1883, 2000.
- Thomson, B. J.**, and Head, J. W., The role of water/ice in the resurfacing history of Hellas Basin, *5th International Mars Conference*, abstract #1883, 2000.
- Thomson, B. J.**, and Head, J. W., Utopia Basin, Mars: A new assessment using Mars Orbiter Laser Altimeter (MOLA) Data, *Lunar and Planetary Science Conference*, 30, abstract #1894, 1999.
- Thomson, B. J.**, P. D. Spudis, and D. B. J Bussey, Impact craters as probes of the lunar crust, *Lunar and Planetary Science Conference*, 29, abstract #1820, 1998.

Book Reviews

- Thomson, B. J.**, review of "Introduction to the Physics and Techniques of Remote Sensing," 2nd ed., by C. Elachi & J. van Zyl, *Computer & Geosciences*, 33, 1094-1095, 2007.